



Phone: +442081445350

[www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)

Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)

# PURE MATH

## ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	DIFFERENTIATION
PAPER TYPE:	QUESTION PAPER - 6
TOTAL QUESTIONS	8
TOTAL MARKS	43

ChemistryOnlineTuition Ltd reserves the right to take legal action against any individual/ company/organization involved in copyright abuse.

**Questions****Q1.**

A curve has equation

$$y = \frac{2x^3 - 5x^2 + 4x - 3}{x^2 - 3x + 2}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

(3)

(b) Hence find the exact range of value of x for which the curve is increasing.

(2)

**(Total for question = 5 marks)**

**Q2.**

A curve has equation

$$y = \frac{x^3 + 4x^2 - 5x - 14}{x^2 + 3x + 2}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

(3)

(b) Hence find the exact range of value of x for which the curve is increasing.

(3)

**(Total for question = 6 marks)**

I am Sorry !!!!!

**Q3.**

A curve has equation

$$y = \sin(x) + x^2$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

**(2)**

(b) Hence find the exact range of value of  $x$  for which the curve is increasing.

**(3)**

**(Total for question = 5 marks)**

CHEMISTRY ONLINE  
— TUITION —

I am Sorry !!!!!

**Q4.**

A curve has equation

$$y = e^x + \ln(x)$$

(a) Find, in simplest form,  $\frac{dy}{dx}$ **(3)**

(b) Hence find the exact range of value of x for which the curve is increasing.

**(3)****(Total for question = 6 marks)****Q5.**

A curve has equation

$$y = \frac{x^2 - 4}{x^2 + 2x + 1}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$ **(2)**

(b) Hence find the exact range of value of x for which the curve is increasing.

**(2)****(Total for question = 4 marks)**

**Q6.**

A curve has equation

$$y = \frac{x^3 - 3x^2 + 4x - 2}{x^2 - 2x + 1}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

**(4)**

(b) Hence find the exact range of value of x for which the curve is increasing.

**(2)**

**(Total for question = 6 marks)**

CHEMISTRY ONLINE  
— TUITION —

I am Sorry !!!!!

**Q7.**

A curve has equation

$$y = \frac{x^4 - 4x^3 + 5x^2 - 2x}{x^3 - 3x^2 + 2x}$$

**(a)** Find, in simplest form,  $\frac{dy}{dx}$ **(2)****(b)** Hence find the exact range of value of  $x$  for which the curve is increasing.**(2)****(Total for question = 4 marks)****Q8.**

A curve has equation

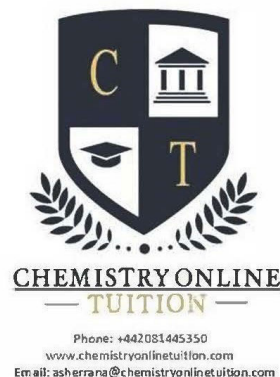
$$y = \frac{2x^4 - 4x^3 + 6x^2 - 8x + 10}{x^3 - 3x^2 + 2x}$$

**(a)** Find, in simplest form,  $\frac{dy}{dx}$ **(4)****(b)** Hence find the exact range of value of  $x$  for which the curve is increasing.**(3)****(Total for question = 7 marks)**

I am Sorry !!!!!



**DR. ASHAR RANA**



- Founder & CEO of Chemistry Online Tuition Ltd.
- Tutoring students in UK and worldwide since 2008
- CIE & EDEXCEL Examiner since 2015
- Chemistry, Physics, and Math's Tutor

## CONTACT INFORMATION FOR CHEMISTRY ONLINE TUITION

- UK Contact: 02081445350
  - International Phone/WhatsApp: 00442081445350
  - Website: [www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)
  - Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)
- Address: 210-Old Brompton Road, London SW5 OBS, UK